

Unit 1 Day 3 WS

Date _____ Period _____

Perform the indicated operation.

$$1) \begin{aligned} g(n) &= 3n - 4 \\ f(n) &= 4n \\ \text{Find } (g - f)(n) \end{aligned}$$

$$2) \begin{aligned} g(n) &= 4n + 3 \\ f(n) &= 2n^3 + 3n^2 \\ \text{Find } (g + f)(n) \end{aligned}$$

$$3) \begin{aligned} h(x) &= 2x - 5 \\ g(x) &= 2x + 5 \\ \text{Find } \left(\frac{h}{g}\right)(x) \end{aligned}$$

$$4) \begin{aligned} h(n) &= -n^2 + 4n \\ g(n) &= 4n + 5 \\ \text{Find } (h + g)(n) \end{aligned}$$

$$5) \begin{aligned} g(x) &= -2x - 3 \\ h(x) &= x - 1 \\ \text{Find } (3g + 4h)(-4) \end{aligned}$$

$$6) \begin{aligned} g(t) &= 4t + 2 \\ f(t) &= 2t - 4 \\ \text{Find } (g \cdot f)(4) \end{aligned}$$

$$7) \begin{aligned} h(t) &= 2t - 2 \\ g(t) &= t^3 - 3 \\ \text{Find } \left(\frac{h}{g}\right)(0) \end{aligned}$$

$$8) \begin{aligned} g(x) &= 2x - 1 \\ h(x) &= x^2 + 5x \\ \text{Find } (2g - 4h)(-1) \end{aligned}$$

$$9) \begin{aligned} h(a) &= -3a + 4 \\ g(a) &= a - 2 \\ \text{Find } (h \cdot g)(-4a) \end{aligned}$$

$$10) \begin{aligned} f(a) &= 2a^2 + 4 \\ g(a) &= -a + 3 \\ \text{Find } (f \cdot g)(a - 2) \end{aligned}$$

$$11) \begin{aligned} f(x) &= 2x + 4 \\ g(x) &= x^3 - 4x^2 + x \\ \text{Find } (f + g)(x - 1) \end{aligned}$$

$$12) \begin{aligned} g(t) &= t^2 + 3t \\ h(t) &= 2t - 1 \\ \text{Find } (g \circ h)(4t) \end{aligned}$$

State if the given functions are inverses.

$$13) \begin{aligned} g(x) &= \frac{-10 - 3x}{2} \\ f(x) &= \frac{-2x - 10}{3} \end{aligned}$$

$$14) \begin{aligned} g(x) &= \frac{1}{x + 2} - 2 \\ f(x) &= \frac{1}{x + 2} - 2 \end{aligned}$$

$$15) \begin{aligned} g(n) &= -\frac{1}{n - 2} - 1 \\ f(n) &= \frac{4}{n - 2} - 3 \end{aligned}$$

$$16) \begin{aligned} g(x) &= 2 + \frac{7}{2}x \\ f(x) &= \frac{2}{7}x - \frac{4}{7} \end{aligned}$$

Find the inverse of each function.

$$17) g(x) = \frac{3}{x - 1} - 1$$

$$18) f(x) = \sqrt[5]{\frac{-x + 3}{2}}$$

$$19) g(x) = \sqrt[3]{x + 2} - 1$$

$$20) h(x) = \frac{4x + 16}{7}$$

Answers to Unit 1 Day 3 WS (ID: 1)

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|----------------------------------|--------------------------------------|----------------------------|--------------------|
| 1) $-n - 4$ | 2) $2n^3 + 3n^2 + 4n + 3$ | 3) $\frac{2x - 5}{2x + 5}$ | 4) $-n^2 + 8n + 5$ |
| 5) -5 | 6) 72 | 7) $\frac{2}{3}$ | 8) 10 |
| 9) $-48a^2 - 40a - 8$ | 10) $-2a^3 + 18a^2 - 52a + 60$ | 11) $x^3 - 7x^2 + 14x - 4$ | |
| 12) $64t^2 + 8t - 2$ | 13) Yes | 14) Yes | 15) No |
| 16) Yes | 17) $g^{-1}(x) = \frac{3}{x+1} + 1$ | 18) $f^{-1}(x) = 3 - 2x^5$ | |
| 19) $g^{-1}(x) = -2 + (x + 1)^3$ | 20) $h^{-1}(x) = \frac{-16 + 7x}{4}$ | | |